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DDI #1688-77

MEMORANDUM FOR: The Honorable Patricia Harris
Secretary of Housing and Urban
Development

Admiral Turner thought that the attached report on West German developments in solar energy would be of some interest to you. Should you require further information, please contact [redacted]
[redacted]

SAYRE STEVENS
Deputy Director
for
Intelligence

Attachment:
As Stated Above

Date 22 APR 1977

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West Germany: Commercial Solar Heat System

A West German firm says it has produced a commercial version of an advanced solar heat collector system for residential heating and cooling. [redacted]

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The Dornier Company of West Germany has offered to supply the system to the Egyptian government. This system differs from other commercial solar heat collectors in that it uses heat pipes containing a special evaporating fluid rather than water or air, to transport heat from the collector surfaces to the storage unit. Using such heat pipes significantly lowers heat loss between collection and storage and increases system effectiveness.

Experimental residential solar collector systems using heat pipes were designed and built as early as 1973, but Dornier is apparently the first firm to market a commercial version. Heat pipes were developed to support space power systems. They can transfer large amounts of heat over considerable distances at efficiencies of 90 percent or more with almost no temperature drop.

A heat pipe consists of a sealed tube lined with a porous capillary wick saturated with a volatile fluid. Heat applied to one end vaporizes the fluid and causes the vapor to travel to the other end, where it condenses and gives up heat. The condensed fluid then returns to the original end by capillary action.

Dornier says its solar heating and cooling system using heat pipes provides a shorter response time and simpler, more effective control. The system was successfully tested in a West German home for over two years. If Dornier can produce it at a competitive cost and develop foreign markets, the company could gain the edge in the very rapidly growing market for residential solar heating and cooling systems. [redacted]

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